

Shp Feb. 24th

Work Order ID 65366

January 13, 2011 10:31:42 AM



Page 1

Item ID: K358-044-001

Accept



Setup Start



Revision ID:

Stop



Item Name: Reservoir Bottle L62W-001

Start Date: 1/13/11 Start Qty: 2.00



Cust Item ID:

Required Date: 1/31/11 Req'd Qty: 2.00



Customer:

Reference:

Run Start



Approvals: Process Plan: *[Signature]*

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

N/A

Rev ~~N/A~~ F

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 13276 to Luxfer
P/N: L62W-001 Hoop Wrapped Cylinder
6.89" O.D x 20.75" long
Volume = 549 cu in Weight = 16.5 lbs Service Pressure = 3000 psi
Thread size = 1.125-12 UNF
Certificate of conformity is required

CL 11/01/13 (2)

110

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Receive & Inspect For Transit Damage Ensure certificate of conformity is attached

[Signature] (2)

#115 QLB input parts

→ 8/12/12

Pro →

Dart Aerospace Ltd

W/O: 65366		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11/02/22	#115	Perm. change ADD step for QCB Revising inspection	MA	11.03.22			S 11/02/22

Part No: K358-044-001 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65366

January 13, 2011 10:31:42 AM

Page 2

Item ID: K358-044-001

Accept

Setup Start

Revision ID:

Stop

Item Name: Reservoir Bottle L62W-001

Start Date: 1/13/11 Start Qty: 2.00

Cust Item ID:

Required Date: 1/31/11 Req'd Qty: 2.00

Customer:

Reference:

Run Start

Approvals: Process Plan: Date: Tooling: Date:

Stop

QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

114 Spray Painting per QSI005 4.2

0.00



SprayPaint

Memo

0.00

Spray Painting

PRIME AND PAINT AS PER DWG

11 02 25 (2)

116 QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

25 11 02 28 (2)

120 Identify as per dwg & Stock Location:

0.00



Packaging

Memo

0.00

Packaging

PPP P.O. 4286

12/2/28 (2)

Work Order ID 65366

Page 3

January 13, 2011 10:31:43 AM

Item ID: K358-044-001

Accept



Setup Start



Revision ID:

Stop



Item Name: Reservoir Bottle L62W-001

Start Date: 1/13/11 Start Qty: 2.00



Cust Item ID:

Required Date: 1/31/11 Req'd Qty: 2.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/02/28

6 11.02.28

Picklist Print

January 13, 2011 10:31:41 AM

Page 1

Work Order ID: 65366

Parent Item: K358-044-001

Parent Item Name: Reservoir Bottle L62W-001


Start Date: 1/13/11

Required Date: 1/31/11

Start Qty: 2.00

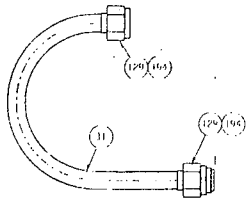
Required Qty: 2.00

Comments: IPP Rev:A 03.09.11 New issue KJ/DS

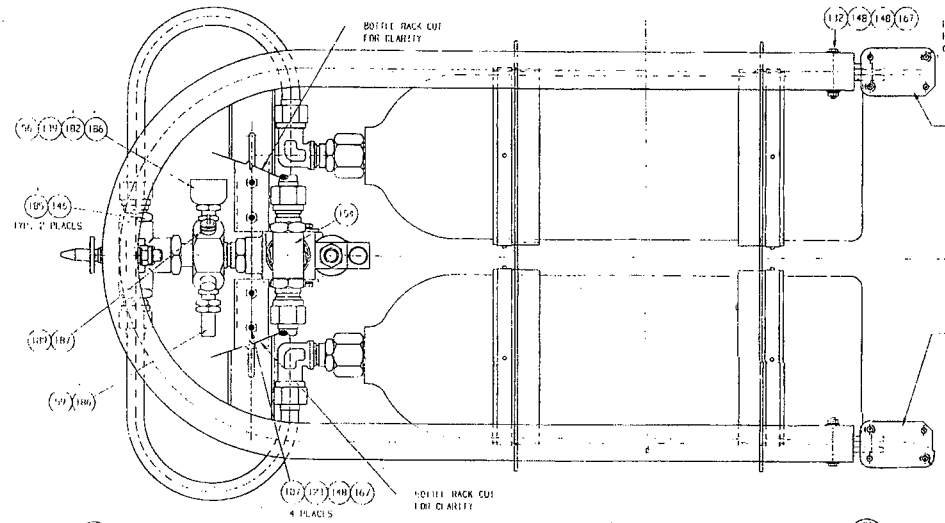
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
K358-044-001P  Reservoir Bottle L62W-001		Purchased	No			110	Each	0.0000	1	2		1/13/11	(2)

65366

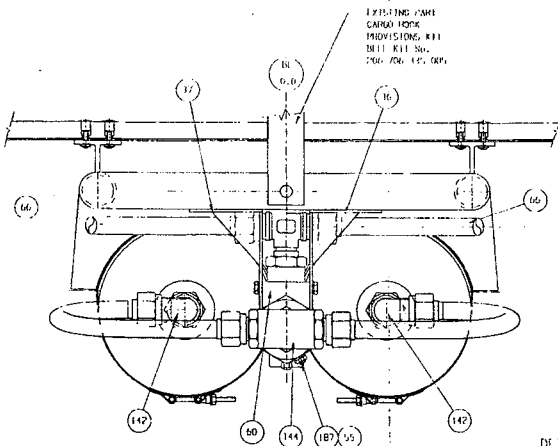
QTY	DESCRIPTION	DATE	BY
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER
1	1. BOTTLE RACK CUT FOR CLARIFIER	12/11/98	ENGINEER



DETAIL OF PART No. 469-021-002A (9)

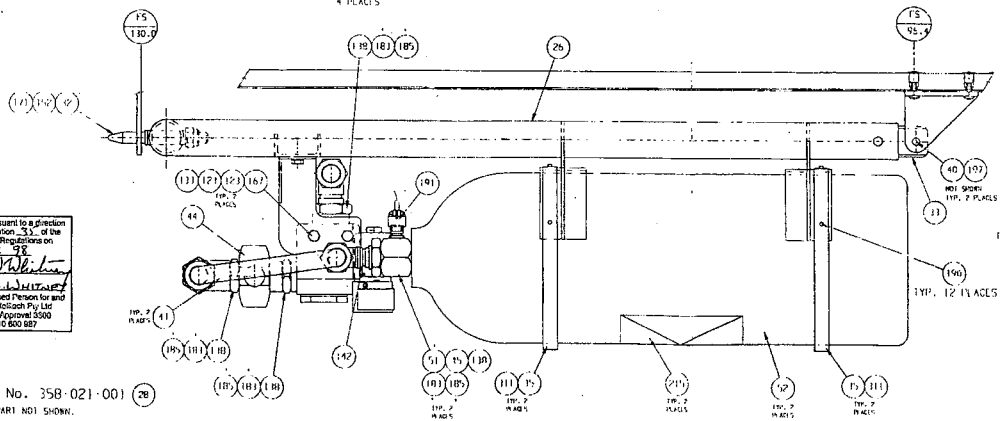


EXISTING PART
CARBON STEEL
PROVISIONS ALL
BELL KIT NO.
206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000.



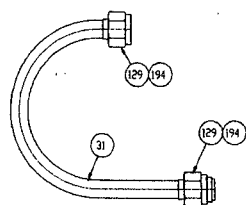
APPROVED pursuant to a decision
given by Regulation 3.3. of the
Civil Aviation Regulations on
Date: 15-12-98
Signature: [Signature]
Name: [Name]
Position: [Position]
Helitech Pty Ltd
Certificate of Approval 0000
A.C.N. 010 600 887

DETAIL OF PART No. 358-021-001 (2)

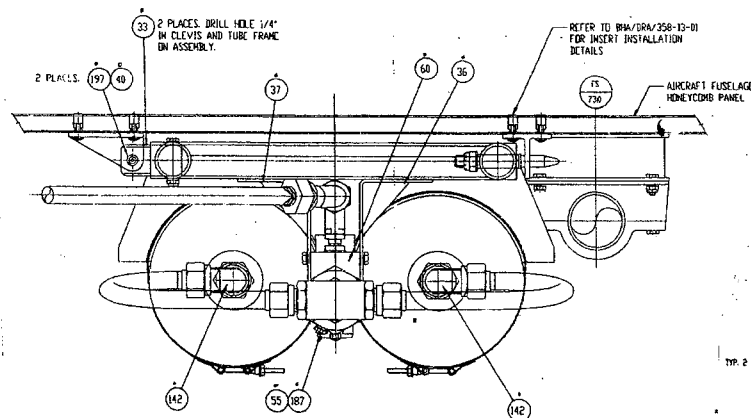


EXISTING PART
CARBON STEEL
PROVISIONS ALL
BELL KIT NO.
206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 4

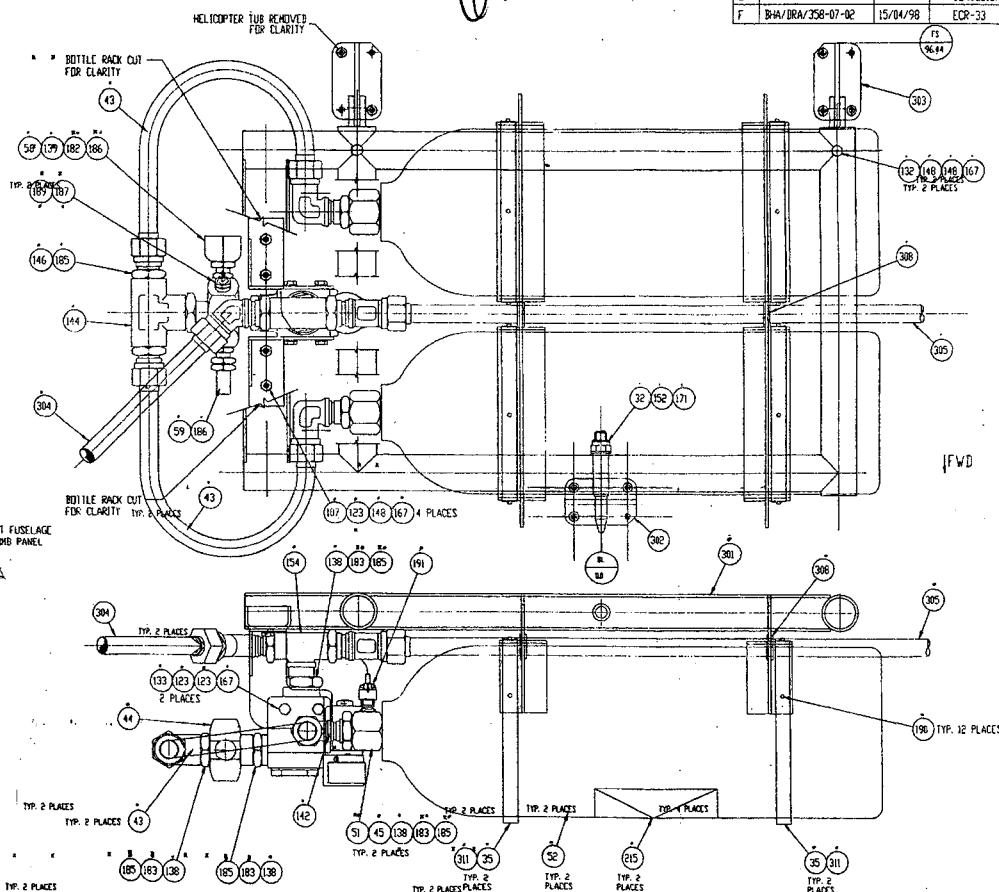
REVISION TABLE			
REV	DRAWING No.	DATE	DESCRIPTION
A	BHA/DRA/358-07-02	12/11/98	ORIGINAL ISSUE
B	BHA/DRA/358-07-02		DWG CHANGES
C	BHA/DRA/358-07-02	15/06/92	BFP CD 1007
D	BHA/DRA/358-07-02		BFP CD 1013
E	BHA/DRA/358-07-02	17/06/96	CONSOLIDATION
F	BHA/DRA/358-07-02	15/04/98	ECR-33



DETAIL OF PART No. 469-035-002A (43)
REFER TO HELITECH PROCESS SPECIFICATION
PS031 FOR MANUFACTURE AND TEST DETAILS

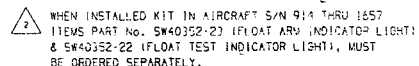


DETAIL OF ASSEMBLY 469-021-001 (29)
NOTE: * INDICATES PART NOT SHOWN
HELICOPTER STRUCTURE & MOUNTS OMITTED FOR CLARITY



REFERENCE DRAWINGS		MANUFACTURING OPERATIONS		MATERIAL	DIMENSIONS IN INCHES (mm)	Helitech		DRAWN	MDR KINAMEN	Client	
BHA/DRA/358-01-01	MATERIALS LIST	ALL WORKINGS TO BE MET AFTER PLATING BROCK ALL BORDS BROCK ALL SHARP EDGES RADIUS 1/8" MIN 64mm-120mm	SUBJECT WORKINGS AND INCLUDING REARER HOLE FOR REARER HOLES BEND RADIUS CORNERS AND FLATS WELD POINT 1/8" IN SECTION MARKED WELDING ALL WELDING FULL PENETRATION 2.5mm BEAD MUST SHOW ON AT LEAST ONE SIDE AND	MATERIAL		Brisbane Helipoint LAWSON AVE. EAGLETON Incorporated in Queensland Helitech Pty Ltd (Q996) See drawing and design contained herein unless the property of HELITECH PTY LTD They may not be copied or reproduced without permission from the client.	PHONE: (07) 32680777 FAX: (07) 32687815 AS 1100	DATE	15/04/98	HELITECH PTY. LTD.	
BHA/DRA/358-01-02	MATERIALS LIST (CONTINUED)							SCALE	1:25	Title	
		TOLERANCE (except where otherwise stated) DIN 1500	WELDING ALL WELDING FULL PENETRATION 2.5mm BEAD MUST SHOW ON AT LEAST ONE SIDE AND	FINISH				CHECKED BY	C.V.M.HINEY	FORWARD BOTTLE RACK INSTALLATION BELL 206 A & B SERIES	
								DATE	15/04/98	Revision	
1	2	3	4	5	6	7	8	9	10	11	12
									333	118	BHA/DRA/358-07-02

2: ALL WIRING & WIRE ROUTING IN ACCORDANCE WITH AC43.13-1A, CHAP 11 & COMPONENT MANUFACTURER RECOMMENDATIONS.

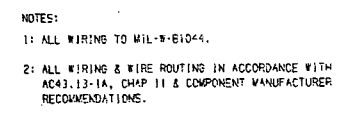


APPLICABLE TO AIRCRAFT
SERIAL NUMBERS 914 TO 1657.

APPROVED pursuant to a direction
given by Regulation 35 of the
Civil Aviation Regulations on
date: 15-4-98
signature: C.W. Whitney
name: C.W. WHITNEY
being an Authorised Person for and
on behalf of Hallictech Pty Ltd
Certificate of Approval 3300
A.C.N. 010 600 987

[illegible]

65366



- - - EXISTING WIRE.

APPROVED pursuant to a direction
given by Regulation 35 of the
CMI Aviation Regulations on
date: 15-4-98
signature: C.W. White
name: C.W. WHITE
being an Authorised Person for and
on behalf of Helitech Pty Ltd
Certificate of Approval 3300
A.C.N. 010 600 987

[illegible]

[illegible]

8.2
7.0

SEE DRAWING
BSA-PRM-150-D1-02
FOR DETAIL.

1.0

FORWARD

AFT

65244

APPROVED pursuant to a direction
given by Regulation 3C of the
Civil Aviation Regulations on
date: 15-4-98
signature: [Signature]
name: C. W. H. HONEY
being an Authorized Person for and
on behalf of Hatztech Pty Ltd
Certificate of Approval 3300
A.C.N. 010.600.087

[illegible]



Dart Aerospace Ltd,
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PO REPRINT

Purchase Order ID PO13276

Purchase Order Date 1/13/11

PO Print Date 1/17/11

Page Number 1 of 1

Order From :

VU-LUX001

LUXFER GAS CYLINDERS
3016 KANSAS AVENUE
RIVERSIDE, CA 92507
US

REVISED

Contact Name

Vendor Phone 951 684 5110

Vendor Fax 951 328 1117

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr 10127-2607

Terms

Net 30

Currency

USD

FOB

Destination-Collect

Ship To :

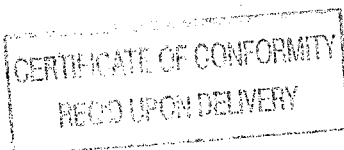
DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req. Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	K358-044-001P	Reservoir Bottle L62W-001	1/31/11 Yes	2.00 Each	FedEx PI collect	\$236.2500	\$472.50
		Special Inst: AS PER DWG DK358-044-011 REV. F B65366 LUXFER P/N: L62W-001 HOOP WRAPPED CYLINDER 6.89" O.D X 20.75" LONG VOLUME = 549 CU IN WEIGHT = 16.5 LBS SERVICE PRESSURE = 3000 PSI TREAD SIZE = 1.125-12UNF					
2		INDIVIDUAL BOXING	1/31/11 Yes	2.00	FedEx PI collect	\$3.0000	\$6.00

PO Total:

\$478.50



Change Nbr: 2

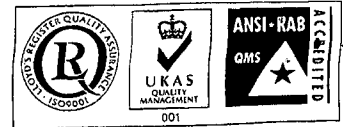
Change Date: 1/17/11

CL

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable



Luxfer Gas Cylinders
 A Division of **Luxfer Inc.**
 3016 Kansas Avenue • Riverside • CA 92507
 Telephone (951) 684-5110 • Fax (951) 328-1117
 www.luxfercylinders.com



PACKING LIST

Shipping Address

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY ON K6A 1K7
 CANADA

Information

Document No.	80197440
Document Date	02/09/2011
PO No.	P013276
PO Date	01/14/2011
Sales Order No./Date	104676 01/14/2011
Customer No.	3464
Shipping Conditions	Standard
Terms of Delivery	FOB LUXFER PLANT, COLLECT
Gross Weight	35.140 LB
Net Weight	29.800 LB
Volumes	1.700 FT3

1 of 1

Shipping Details

Item	Material Description	Storage Location	Quantity	Weight
0010	<p>CERTIFICATE OF CONFORMITY WITH SHIPMENT. FED-EX P1 / COLLECT - ACCT #15179324-0</p> <p>L62W-001 CYLINDER, ALUMINUM FIBERWRAPPED, 62 CF</p> <p>Plant : 62 BASE MODEL L62W SERVICE PRESSURE 4500 PSI SURFACE FINISH HOOPWRAPPED WITH FIBERGLASS THREAD 1.125-12 UNF 2B, STD GLAND INTERNAL FINISH THERMO CLEANED LABEL CUSTOM LABEL APPLIED APPROVING AUTHORITY DOT/TC - USA DOT/TRANS CANADA</p>	1	2 EA	35.140 LB

8
11/02/72



Luxfer® Gas Cylinders Composite Cylinder Division

CERTIFICATE OF CONFORMANCE

CUSTOMER: DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY ON K6A 1K7
CANADA

DATE: 2/18/2011

CUSTOMER P.O. NO. : PO13276

LUXFER S.O. NO. : 104676

CUSTOMER DRAWING NO. : N/C

REV. NO. : N/C

8 u162/22


ITEM	LUXFER PART NO.	REV	SAMPLE PLAN	DESCRIPTION	QUANTITY
1	L62W-001	E	N/A	COMPOSITE CYLINDERS 549 CU. IN. / 3000 PSI	2

PREFIX:	WS
SERIAL NUMBERS:	5347, 5348

We hereby certify that all materials of construction, processes of manufacture, required inspections and tests meet all applicable specification requirements. Material certifications, inspection and test results are available for review. We also certify that the above listed product items satisfactorily meet all purchase order, drawing and specification requirements for the revisions identified except for the following:

EXCEPTIONS:	None.
--------------------	-------

NAME: Robert Felix

SIGNATURE: 

TITLE: Shipping Coordinator

DATE: 2/18/2011

3016 Kansas Ave.
Riverside, CA 92507
USA
Tel: (909)-684-5110
Fax: (909) 341 9223

Setting the Standard Worldwide®

CCD-II-96-33

Our File.....
Our Order.....
Client's Order.....

Arrowhead Industrial Services Inc.

Report of Manufacture of Filament Reinforced Plastic (FRP)
Seamless Aluminum-Liner Compressed Gas Cylinder

Report No. AISI-19918.....
Sheet No. 1.....
of 7..... Sheets

Date: February 17, 2011

Manufactured By: Luxfer Gas Cylinders
Located at: 3016 Kansas Ave. Bldg. #3
Riverside, California 92507

Manufactured For: Dart Aerospace LTD
Located at: 1270 Aberdeen Street
Hawkesbury ON, K6A 1K7
Canada

Cosigned to: Same as above
Located at:

Part number: L62W-001

Quantity: 3 **Size:** 7.06 in./ 179.00 mm outside diameter by 20.75 inches / 527.00 mm long.
Quantity Shipped: _____ 549.0 cu.in./ 9.0 liter

MARKS PLACED ON IMBEDDED LABELS ARE:

TC-3HWM 207
DOT-SP 7235-3000

Serial Number WS5346 to WS5348 inclusive, except as noted on hydrostatic test sheet

Identifying Symbol (registered) LUXFER

Inspector's Mark:



Other Marks:

Test Date: 2-11

ELASTIC EXPANSION RANGE 90-120 CC

Additional marks stamped on cylinder/neck face are individual liner serial numbers.

Each composite cylinder was made by completely overwrapping a seamless aluminum liner with resin impregnated filament reinforcement. Liners were made by forming a shoulder and neck on the open end of an aluminum seamless shell. Composite overwrap was made by winding resin impregnated commercial S-2 fiberglass continuous filament over the liner in circumferential directions followed by curing of the resin at controlled temperature.

Aluminum was identified by heat numbers and verified as to chemical analysis record thereof is attached hereto. Liners fabricated from the aluminum were solution treated and artificially aged to T-6 temper. Physical test were made in the presence of the inspector and report of results of specimens taken from these liners is attached hereto.

Each liner was inspected both before and after closing in the ends. All that were inspected were found to be free from seams, cracks, laminations and other defects, which might prove injurious to the strength of the cylinder.

Arrowhead Industrial Services Inc.

Report of Manufacture of Filament Reinforced Plastic (FRP) Seamless Aluminum-Liner Compressed Gas Cylinder

Liner walls were measured and the minimum was found to be .247 inches/ 6.27 mm. The outside diameter was found by a close approximation to be 6.9 inches/ 175.0 mm.

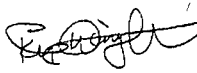

Flattening test was made in the presence of an Inspector and found to be in compliance with the requirements.

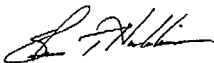

Filament and resin components were certified by the manufactures, identified by lot number. Filament was verified as to strength. Composite was verified as to shear. Record thereof is attached hereto.

Aluminum stresses were calculated to be 31219 PSI / 215.25 Nmm² at service pressure. Fiber stresses are calculated to be 75224 PSI / 518.65 Nmm² at service pressure.

Autofrettage and hydrostatic test, as prescribed, were made in the presence of the Inspector. All cylinders accepted were in compliance with requirements. Results of autofrettage and test pressurization are attached hereto.

I hereby certify that the cylinders proved satisfactory in every way and comply with the stated requirements of DOT-SP 7235 and TC-3HWM 207.

Signed:  
Kip Wirtzfeld
AISI CCD Supervisor

Signed:  
Steven T Hutchinson
AISI Certifying Inspector

Place: Riverside, CA 92507

Date: February 17, 2011

ARROWHEAD INDUSTRIAL SERVICES, INC.
RIVERSIDE, CALIFORNIA

REPORT OF MANUFACTURE OF FRP SEAMLESS ALUMINUM-LINED CYLINDERS
RECORD OF CHEMICAL ANALYSIS

MANUFACTURED BY: LUXFER COMPOSITE CYLINDERS DIVISION
FOR: DART

Reporting Date: 17 Feb 2011
Symbol: LUXFER

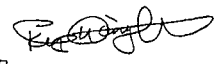
ALUMINUM ALLOY 6061

NUMBERED WS5346 to WS5348 inclusive.

MILL HEAT CODE*	HEAT NO.	CHECK ANALYSIS NUMBER	CU	SI	FE	MN	MG	ZN	TI	GA	NI	PB	SN	BI	V	CR
767	(S) 10-196701A	**767	0.25	0.60	0.17	0.02	0.91	0.00	0.01	0.01		0.000	0.000	0.000		0.079

ALUMINUM WAS MANUFACTURED AND MILL ANALYSIS MADE BY:
(S) SHAWINIGAN WORKS, ALCAN ALUMINUM, CANADA.

THE ORIGINALS OF CERTIFIED MILL ANALYSIS REPORTS ARE IN THE FILES OF THE MANUFACTURERS.
** CHECK ANALYSIS MADE BY ALCAN INGOT IN SEBRESEE, KENTUCKY OR TIMCO ALUMINUM SMELTERS, FONTANA, CA
* APPLICABLE CODES ARE STAMPED INTO EACH CYLINDER

SIGNATURE 

ARROWHEAD INDUSTRIAL SERVICES, INC.
RIVERSIDE, CALIFORNIA

REPORT OF MANUFACTURE OF FRP SEAMLESS ALUMINUM-LINED CYLINDERS
RECORD OF PHYSICAL TESTS OF MATERIAL FOR CYLINDER LINERS

MANUFACTURED BY: LUXFER COMPOSITE CYLINDERS DIVISION
FOR: DART

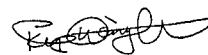
Reporting Date: 17 Feb 2011
Symbol: LUXFER

NUMBERED WS5346 to WS5348 inclusive.

LOT CODE*	CYLINDERS REPRESENTED BY TEST (SERIAL NUMBERS)	YIELD STRENGTH AT 0.2% OFFSET (POUNDS/SQ. IN.)	TENSILE STRENGTH (POUNDS/SQ. IN.)	ELONGATION % IN 2.0"***	ROCKWELL "B" HARDNESS TEST	1-1/2" RADIUS FLATTENING
S257	WS5346 THRU WS5347	45821 45542	51050 51746	15.0 17.5	N/A N/A	PASSED 9T FLAT TEST
S258	WS5348 THRU WS5348	45683 45640	52404 52357	18.0 17.0	N/A N/A	PASSED 9T FLAT TEST

* APPLICABLE CODES ARE STAMPED INTO EACH CYLINDER
** TENSILE TESTS MADE ON 0.5" WIDTH BY 2.0" GAUGE LENGTH. ASTM B557

SIGNATURE



ARROWHEAD INDUSTRIAL SERVICES, INC.
RIVERSIDE, CALIFORNIA

REPORT OF MANUFACTURE OF FRP SEAMLESS ALUMINUM-LINED CYLINDERS
RECORD OF COMPOSITE ANALYSIS

MANUFACTURED BY: LUXFER COMPOSITE CYLINDERS DIVISION
FOR: DART

Reporting Date: 17 Feb 2011
Symbol: LUXFER

NUMBERED WS5346 to WS5348 inclusive.

Filament designation and specification: S-2 449AA-750

Filament manufactured by: AGY LLC, CHARLOTTE, NC

MANUFACTURING LOT NUMBER	NUMBER TENSILE STRENGTH	INTERLAMINAR SHEAR
In House Number: 266 SE7102210 WS5346/WS5348	533539 PSI	6554 PSI after 4 hours water boil

RESIN SYSTEMS COMPONENTS AND MANUFACTURING LOT NUMBERS

Resin designation: BISPHENOL A

Resin manufactured by: HEXION OIL, HOUSTON, TX

RESIN		CURING AGENT		AIR RELEASE	
TYPE	LOT NUMBER	TYPE	LOT NUMBER	TYPE	LOT NUMBER
EPON 826	DPOL1612 WS5346/WS5348	T-403	OL107 WS5346/WS5348	BYK-A 501	1130056 WS5346/WS5348

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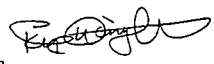
REPORT OF MANUFACTURE OF FRP SEAMLESS ALUMINUM-LINED CYLINDERS

MANUFACTURED BY: LUXFER COMPOSITE CYLINDERS DIVISION
FOR: DART

Reporting Date: 17 Feb 2011
Symbol: LUXFER

NUMBERED WS5346 to WS5348 inclusive.

CYCLE TEST S/N WS12219 Lot # WS162
Cylinder Weight 0.00 lbs
Pressurization Range approx. 0 to 3000 PSIG
Number of cycles applied 10010
Pressurization Range approx. 0 to 5000 PSIG
Number of cycles applied 33
Pressurization rate 4 cycles a minute
Achieved burst pressure after cycling: 9900 PSIG

SIGNATURE 

ARROWHEAD INDUSTRIAL SERVICES, INC.
RIVERSIDE, CALIFORNIA

REPORT OF MANUFACTURE OF FRP SEAMLESS ALUMINUM-LINED CYLINDERS
WEIGHT AND HYDROSTATIC TEST DATA FOR FRP COMPRESSED GAS CYLINDERS

MANUFACTURED BY: LUXFER COMPOSITE CYLINDERS DIVISION
FOR: DART

REPORT DATE: 17 Feb 2011

LOT NO: WS162
P/N: L62W

SYMBOL: LUXFER

NUMBERED WS5346 to WS5348 inclusive.
ALL CYLINDERS WEIGHED WITHOUT VALVE AND PAINT
**CYLINDER PREVIOUSLY EXPOSED TO AUTOFRETTAGE
* RETESTED AT: 5100 PSI

AUTOFRETTAGE PRESSURE: 5500 PSI
HYDROSTATIC TEST PRESSURE: 5000 PSI

Heat Treat Insp Lot #	Mat. Code	Serial Number	WEIGHT			Volume Cu. In.	AUTOFRETTAGE		HYDROSTATIC			RATIO Perm/ Total	Test Date
			Liner	Comp.	Empty		Total Exp.	Perm Exp.	Total Exp.	Perm Exp.	Elas. Exp.		
S257	767	WS5346	14.72	1.28	16.00	558.3	**165	61	94.7	0.3	94.4	0.32	17 Feb 2011
S257	767	WS5347	14.72	1.27	15.99	562.2	196	91	97.1	0.9	96.2	0.93	15 Feb 2011
S258	767	WS5348	14.70	1.29	15.99	563.9	203	98	96.1	0.8	95.3	0.83	15 Feb 2011

SIGNATURE

